

STCG Subcon Subgroup Meeting Minutes

February 13, 2001

Introductions/Announcements (Arlene Tortoso)

Arlene opened the meeting and announced that the SCFA Mid-Year Review was scheduled for March 20-22 in Atlanta. She also mentioned the STCG Management Council meeting that occurred on February 6. At that meeting, Tom Wood and Wayne Johnson presented the Sitewide S&T Plan (*Hanford Site Cleanup Challenges and Opportunities for Science and Technology*, DOE-RL-2001-03, Rev.0). The Management Council, the Subgroups, and DOE-HQ will be asked to review the draft document and provide comments.

Nancy Uziemblo introduced Deborah Singleton as Dib Goswami's alternate for this Subgroup. Arlene announced that we were celebrating a happy event --- Judit German-Heins recently became a U.S. citizen. Congratulations, Judit!

Review Minutes from Last Meeting (Facilitator)

The facilitator reviewed the minutes from the November 15, 2000 meeting. No changes were requested.

ITRD Project Updates (Arlene Tortoso)

The 100-N Area report is being finalized with the comments received. A conference call on the Carbon Tetrachloride ITRD Project was scheduled for February 21. It was to focus on the path forward and get resolution on the PIT test. Gordon Rogers noted that both ITRD projects have been on hold for a long time because they are dealing with such complex problems. The carbon tetrachloride plume could reach the river in 200 years in 5 PPB concentrations according to the model. There are uncertainties regarding where the inventory is and how much there is, and also the direction of the plume flow due to the dropping water table. Gordon questioned the benefits of any technology for the Sr-90 plume, suggesting that it might be a waste of money to try to treat it since much of it will decay before it ever reaches the river. Arlene stated that his concerns would be captured in the final report that Sandia is preparing. It should be ready this spring.

618-10 and 618-11 Burial Ground Remediation (John April)

The 618-11 burial ground is just outside Energy Northwest property, which has raised the level of concern about its remediation. Tritium was encountered in the local well water, which caused a big stir.

John described the recent development of a 618-10 and 618-11 burial ground remediation strategy (for planning purposes only). They back-calculated from 2018 where to put a Technology Insertion Point (TIP) and decided that 2006 was the appropriate year. They also identified the treatability studies to be done. They plan to do an options study during the first four months of FY 2002 to help understand the necessary steps and what technologies are needed. The Technology Alternatives Baseline was started last year and Rev 0 is almost finished. They are looking at intrusive and non-intrusive technologies for burial grounds. They developed a work breakdown structure of what needs to be done and looked at what technologies are available at other companies and other sites. The remote-handling equipment needed for TRU waste is not available right now. On January 31, they started a bench-marking activity with Oak Ridge, INEL, and West Valley, where similar problems exist. Scott Petersen was involved in this activity. Their next conference call is on March 7. They need to get started on RH-TRU technologies as soon as possible. Idaho says they should focus on characterization and packaging of contact-handled waste, too.

Dennis Faulk asked if T-Plant could be used for RH-TRU if the M-91 facility is not built. He also asked why there is a seven-year hiatus. DOE needs to meet the 2018 deadline and they need over \$80 million a year starting in FY 2015 to do it. That scenario is not credible. This is a big problem that must be approached from a systems standpoint. DOE should not jump to a particular technology.

Bill Bonner noted that TRU waste falls under the Mixed Waste Subgroup, and Bechtel needs to connect with them.

TIE Conference Report (Jim Hanson)

DOE-HQ asked RL to present the Hanford Benefits Analysis methodology at the recent TIE Conference. Hanford has developed a reasonable approach for presenting return-on-investment (ROI) results of technology deployments. All Hanford deployments will use this approach now. A total of \$140 million of avoided costs for 17 RL deployments last year has been entered into IPABS. Ken Gasper (ORP) will be using this methodology for their five deployments, too.

Tom Hicks (former SCFA technical leader) has taken a new position at Pantex doing environmental restoration work. No replacement has been named yet.

100-Area Chromium Problem Discussion (Larry Gadbois)

There are four chromium plumes in the 100 Area. One of the plumes, namely the one resulting from the mile-long liquid effluent trench, was discussed. This trench received a huge volume of liquid discharge over a 15-year period. The soil under and around this trench, all the way to groundwater, was saturated with discharge containing 700 ppb hexavalent chromium. The chromium leaches down into the groundwater and continues to renew a groundwater plume. There is currently a pump-and-treat system operating to capture the plume, but it doesn't appear to be a good long-term solution. Another

plume in the 100 Area is being treated with an in-situ reactive permeable barrier. This barrier appears to be effective, but is very expensive to install, decays over time, and has to be renewed. Until the chromium in the deep vadose zone is remediated, we will have a persistent groundwater plume and a no-end-in-sight remedial action. The discussion emphasized the need to test and deploy in-situ remedies to remediate the chromium contamination in the deep vadose zone.

Ed Thornton stated that the 100-DR water treatment plant is the likely source of the chromium plume in the 100-D Area. They drilled two boreholes but didn't find any hot spots with Cr(VI). They need a way to narrow down the location of the source term. The 100-K Area has a big, dilute source. Perhaps Cr(VI) was co-precipitated with calcite deposits in the soil. Chromium isn't freely moving like the tritium did.

Mark Freshley noted that John Zachara is finding more retardation of chromium in the SX tank farm than he expected. Presentations will be made to the National Academy of Sciences at the end of March. Perhaps he could present to the Subgroup in April. Dennis Faulk said that Jeff Serne was doing some chromium tests for EPA and maybe he could also present to the Subgroup.

Status Report on Selected S&T Needs (Scott Petersen)

First Scott reported on the MSE uranium studies in the 200-West Area. They are planning on doing leachability studies on soil samples and progressing fairly well. He then discussed the status of two priority-3 S&T needs:

- RL-SS19 Detection, Handling, and Treatment of Pyrophoric materials in Burial Grounds
- RL-SS24 Improved Ex Situ Treatment of Soils Contaminated with Lead and Other TCLP Metals

RL-SS19 is tied to the discovery of drums of uranium metal waste at the 618-4 burial ground. About 400 barrels with uranium shavings (machining chips) in oil were found when excavation began, and there are at least as many remaining unexcavated. Another portion of the burial ground may contain the same type and amount of waste. Improved methods for detecting, handling, and treating suspect pyrophoric materials are required. There are two documents on the BHI website that discuss this issue:

- Technology Alternative Baseline (BHI-01275)
- Treatment/Disposal Plan for Drummed Waste from the 300-FF-1 Operable Unit, 618-4 Burial Ground (BHI-01264)

Dirk Dunning asked if there could be lithium or sodium metal in these burial grounds. Scott answered that the possibility exists. Mike Thompson suggested that we might want to make the need more general to encompass the 618-10/11 burial grounds. BHI is planning to turn over the entire 618-4 oil/uranium waste stream to ATG for conversion to glass to be disposed at Hanford.

RL-SS24 deals with the need for an ex situ treatment that is more cost-effective than the baseline

cementation process required to treat soils contaminated with lead and other heavy metals. The ERDF waste acceptance criteria for excavated Hanford soils require that they do not leach hazardous metals as defined by the Toxic Characteristic Leaching Procedure (TCLP). Soils that fail the TCLP test must be treated prior to disposal at ERDF. Grouted soil was sent to ERDF in one case, but larger soil volumes may require a different type of treatment.

Potential FY01 Technology Deployments (Scott Petersen)

BHI has 11 potential FY 2001 technology deployments, and many of them are D&D. Five of them have actual commitments to deploy, and six are potential. Many of them are “almost in the toolbox” (i.e., ready to deploy) and BHI is just looking for an opportunity to deploy them.

Bechtel Support for S&T Utilization (Jerry White)

Jerry is working on a Bechtel corporate approach to support S&T utilization through a lead lab activity funded by SCFA. The intent is to tie together various DOE sites where Bechtel has contracts to provide extra benefits to DOE through a corporate approach to S&T. A Bechtel Corporate Science and Technology Team was established in January 2001. The team is looking for opportunities to improve S&T effectiveness by sharing information among sites and working on joint proposal efforts. They try to get BHI staff to participate in SCFA Technical Assistance Teams due to their field experience. Mike Hughes and Steve Liedle are pushing efforts to do technology demonstrations that benefit multiple sites and sharing the benefits of S&T successes among sites.

Update on EM S&T Program Plan (Jerry White)

Jerry is working on an EM-50 Core Team to help plan the future focus of the EM S&T Program for the next 5-10 years. The team was asked to update the November 1998 EM R&D Program Plan by working with the Focus Areas and other stakeholders. The set of planning assumptions will be provided to the Subgroup for review as soon as they are finalized. Currently no S&T program exists for long-term stewardship. The following steps are needed in the OST evolution to provide a stronger focus:

1. Help end-users solve major cleanup problems (e.g., Hanford vadose zone).
2. Provide improved long-term planning to identify/solve long-term technical problems through improved S&T.
3. Implement partnering with DOE sites to solve major technical problems.

Revisions to IPABS Data Requirements (Jerry White)

Jerry is also working on improvements to the DOE-HQ IPABS data requirements to reduce impacts on data suppliers (i.e., end-users) and provide improved accuracy in S&T data. Some of the major problems will be fixed (e.g., the inability to delete old needs that are no longer needs). The team is facilitated by INEEL. Mike Truex and Jerry White represent the Hanford end-users.

Attendees

John April (BHI)
Rick Bond (Ecology)
Bill Bonner (PNNL)
Jim Bush (PNNL)
Lynn Curry (BHI)
Dirk Dunning (Oregon)
Linda Fassbender (PNNL)
Dennis Faulk (EPA)
Mark Freshley (PNNL)
John Fruchter (PNNL)
Larry Gadbois (EPA)
Judit German-Heins (Nez Perce Tribe)
Jim Hanson (DOE-RL)
Ron Jackson (BHI)
Terry Liikala (PNNL)
Scott Petersen (BHI/TA)
Wade Riggsbee (Yakama Nation)
Gordon Rogers (HAB)
Deborah Singleton (Ecology)
Mike Thompson (DOE-RL)
Ed Thornton (PNNL)
Arlene Tortoso (DOE-RL)
Nancy Uziemblo (Ecology)
Jerry White (BHI)
Rob Yasek (DOE-ORP)

Next Meeting

The next Subcon Subgroup meeting was scheduled for April 17, with a focus on current S&T activities related to chromium in the vadose zone.